HISTORICAL

-REPORT-

FEB 12, 1951



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4925 SPECIAL WEAPONS GROUP KIRTLAND AIR FORGE BASE-NEW MEXICO



OPERATION RANGER HISTORICAL REPORT (SAN)

12 February 1951

4925 Special Weapons Group

REVIEWED BY DTRA (SOIC)
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HEADQUARTERS, 1925TH SPECIAL WEAFONS GROUP Office of the Commanding Officer Kirtland Air Force Base, New Mexico

12 February 1951

OPERATIONS REPORT - PROJECT "RANGER"

I COMMITMENT

- 1. The 4925th Special Weapons Group was committed by the Special Weapons Command to drop five (5) nuclear atomic bombs, and one (1) HE practice bomb for the Atomic Energy Commission, Les Alamos, New Mexico.
- 2. The purpose of these drops was to pre-check test equipment prior to Project "Greenhouse", measure yield of nuclear units, and determine atomic cloud characteristics. The HE drop was for the purpose of testing the operation prior to the nuclear drops. Schedule of drops was as follows:

25	January	1951	HE drop. Full dress rehearsal of operation.
27	January	1951	First nuclear drop -
28	January	1951	Second nuclear drop -
1	February	1951	Third nuclear drop -
2	February	1951	Fourth nuclear drop -
6	February	1951	Fifth nuclear drop -





II PARTICIPATING ORGANIZATIONS

- 1. AEC, Los Alamos, New Mexico
- Control of Project "Ranger", radiological safety, analyzing data, and security.
- 2. Special Weapons Command Kirtland AFB, New Mexico
- Command control and coordination.
- 3. 4925th Special Weapons Group Kirtland AFB, New Mexico
- Executing drop missions and providing direct support to AEC, Los Alamos, New Mexico
- 4. 4901st Support Wing (Atomic) Kirtland AFB, New Mexico
- Support the L925th Special Weapons Group by providing aircraft and personnel for courier and administrative operations.
- 5. Sandia Corporation
 Sandia Base, New Mexico
- Instrumentation and furnishing units.
- 6. Edgerton, Germeshausen & Grier, Boston, Massachusetts
- Instrumentation and obtaining yield data.

7. AFOAT-1, USAF Washington, D. C.

- Cloud tracking, sampling, and survey.
- 8. Strategic Air Command Offutt AFB, Nebraska
- Provided aircraft and personnel to obtain bomb burst photos.



III SUPERVISORY PERSONNEL

Mr. Carroll L. Tyler

Dr. Gaelen Felt

Dr. John Clark

Mr. R. W. Henderson

Colonel O. J. Ritland

Colonel J. A. Jack

1st Lt O. R. Hill

Major E. M. Miller

Captain M. R. Pierce

Captain L. B. Panther

Lt Colonel J. A. Cody

Colonel A. P. Tacon

AEC in charge of Project "Ranger"

Coordination of activities between Operations Group and AEC, Los Alamos

AEC in charge at the test site.

Sandia Corporation. Instrumentation and delivery of units.

Commanding Officer, Operations Group

Special Weapons Command Project Officer

4925th Special Weapons Group Project Officer

1925th Operations Officer at test site

4925th Control Officer at Kirtland AFB

4925th Operations Officer at Kirtland AFB

Officer in charge of AFOAT-1 activities at Nellis AFB

Base Commander, Nellis AFB, Nevada. Supported project with facilities and services.



IV OPERATION AS EXECUTED

1. Staging Bases of Aircraft

a. At Kirtland Air Force Base, New Mexico:

Strike aircraft - B-50 #47169 (Bullpup). SAC B-50 (Reindeer). C-47 disaster aircraft (Nickname). C-45 cover aircraft for Carco.

b. At Indian Springs, Nevada:

Two (2) B-25 courier aircraft (Carry-all 1 and 2). One (1) E-25 courier aircraft (Hotshot). C-47 standby support aircraft. C-45 standby support aircraft.

c. At control point of the site (Mophead):

H-19 Helicopter (Little Joe 3). H-13 Helicopter (Little Joe 2).

d. Furnished by and staged at Nellis Air Force Base, Nevada: H-5 Helicopter (Little Joe 1)

2. General Information

- a. Target information:
 - (1) The target was located on the Tonopah, Nevada Bombing Range on the northwest side of a dry lake known as Frenchman's Flat, the coordinates being 36°50' north, 115°57' west; elevation 3,138 feet. Target was cross lighted with lights 100' 300' 500' from center of target.





b. Bombing Procedures:

with at least two dummy runs prior to the live run.

Bombing altitude was 19,700 feet above the target

for the HE and first four nuclear drops, and 29,500

feet above the target for the fifth nuclear drop.

The SCR 718 radar altimeter was used to determine

altitude. Bombing true airspeed was 260 miles per

hour for the HE and first four nuclear drops; 315 HTH

for the fifth nuclear drop. Direction of bomb run

was between 230° and 280° track over the ground.

Height of bomb burst was 1,050 feet for the first

four nuclear drops and 1,350 feet for the fifth

nuclear drops.

c. Communications:

(1) Communications were in accordance with Salton Sea test procedures utilizing HF frequencies of 7385kc as primary and 11610kc as secondary; VHF frequencies of 113.1mc as primary, and 137.88mc as secondary.

After the second mission, 2862kc was used for air to ground route communications and position reports to clarify monitoring of all participating agencies.

3. Bullpup Operation (Strike aircraft)

a. Loading:



(1) The strike aircraft was loaded the day prior to the operation. 4925th Special Weapons Group personnel conducted the loading after assembly and delivery of the units was made by Sandia Corporation. All unit and equipment check-outs were accomplished immediately after loading. Capsule delivery was made by W-l of Los Alamos forty-five minutes prior to take-off of the aircraft.

b. Take-off:

(1) Take-off was planned so that the strike aircraft would be in the target area from two hours to two hours 15 minutes prior to the drop.

c. Route:

(1) Route for the strike aircraft was airways Green 4 to Prescott Red 15 to Ias Vegas direct to target area, cruising 14,000 feet. Upon reaching Indian Springs a let-down was executed to 10,000 feet at which altitude the aircraft proceeded to a point north of the target where IFI was accomplished. After accomplishing IFI, a climb to bombing altitude was made and dummy run commenced adhering to a right-hand pattern, avoiding populated areas. During the two dummy runs, communication checks

Were made with the CP and associated aircraft.

Landing lights and an aldis lamp were used to aid askania personnel following the aircraft. Weather information was constantly radioed to Eullpup while in the target area. After the drop, Bullpup returned to Kirtland Air Force Base by proceeding to Las Vegas then by airways Red 15 and Green 4.

4. Reindeer Operation (SAC B-50 Photo Aircraft)

a. This aircraft, carrying photo equipment, took off after Bullpup and followed 2,000 feet above the bomb carrier aircraft for the entire mission. During the live run he was spaced 2,000 feet above and three to four miles to the rear of Bullpup so that better visual contact could be made with the bomb burst.

5. Nickname Operation (Disaster Aircraft)

a. A C-47 carrying a disaster crew, air police, and Radio-logical Defense personnel took off after Bullpup, and followed at 12,000 feet to Las Vegas where the disaster aircraft descended and held at 10,000 feet on the southwest leg of the Las Vegas Range until the drop was completed. The purpose of this aircraft was to monitor the movements of Bullpup and, in the event of an emergency, offer assistance as required. After the drop his mission was terminated, at which time he returned to Kirtland Air Force Base.



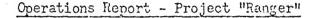
6. Little Joe Operation

a. Three (3) helicopters were used in this operation. Little Joe 1, staged at Nellis AFB, was placed under the operational control of the Radiological Safety Section. Little Joe 2 and 3, staged at the CP, were used to support radiological safety measures and expedite data delivery to B-25 courier aircraft. Little Joe 1 was used only twice during the operation to survey the target area. Little Joe 2 and Little Joe 3 were dispatched after the drop to target area with monitors who determined the intensity of radioactivity at the landing strip (on Frenchman's Flat) and the camera stations (located two miles southeast and northeast of the target). When these areas were declared safe, Edgerton, Germeshausen & Grier personnel were transported to the camera stations where data was collected and delivered to the courier aircraft at the landing strip. After dust clouds had settled the helicopters were used for survey purposes. Little Joe 3 transported data and couriers from the CP to an awaiting courier aircraft at Indian Springs.

7. Carry-all Aircraft

a. Three (3) B-25 aircraft were utilized for courier service from the target area to Kirtland Air Force Base where data and couriers were transferred to Carco aircraft for delivery to Los Alamos. After the drop and the target area declared safe from radioactivity, Carry-all No. 1 and No. 2 were dispatched to the landing strip at Frenchman's Flat





where data and couriers were picked up and transported to Kirtland Air Force Base. The third courier aircraft, Hotshot, remained at Indian Springs where courier and data were delivered by helicopter. This aircraft stopped en route to Kirtland at Nellis Air Force Base to obtain additional data from AFOAT-1. At the start of the operation, this airplane was not in the plan; however, beginning with the first nuclear drop, it was brought into the operation to further expedite delivery of data which could not be put aboard the two "Carry-all" aircraft. Average delivery time of data to Los Alamos was 4 hours 10 minutes after drop time.

8. Carco Cover Aircraft

a. C-45 aircraft, staging from Kirtland Air Force Base, flew cover for Carco airplanes from Kirtland to Los Alamos to provide for prompt location and aid in event of possible Carco aircraft failure.





SUMMARY OF DROPS

1. HE Drop

- a. This mission was conducted according to plan. The drop was made at the specified time with good results. Immediately following this mission, AFOAT-1 requested a change in the communications procedures whereby Bullpup would clear the operating frequency of 7335kc after the drop so that it could be used for directing tracking and sampling aircraft. This request was made because AFCAT-1 had not secured 143.1mc VHF crystals. The change was made utilizing 2562kc en route.
- The en route procedures of the SAC photo aircraft, Reindeer, were changed whereby it acted as cover aircraft in case an exergency of the strike aircraft existed.
- c. The helicopter aircraft were not fully utilized during this mission. The radiological safety surveys and data pickup operations at the test area were accomplished solely by vehicles which proved to be very slow. Plans were made to use helicopters for the next mission and to land B-25 courier aircraft on the dry lake adjacent to the target.
- d. A new commitment for furnishing a third 2-25 for courier service was received. The function of this aircraft was to pick radiation samples from the test area and filter paper samples from the AFOAT-1 Section, and deliver to Kirtland Air Force Pase where Carco service





made delivery to Los Alamos. Arrangements to meet this commitment were made.

- e. See inclosure #1 for details.
- 2. First Nuclear Drop (27 January 1951)
- a. This mission, in which was used, was according to plan with no major changes. The use of helicopters to transport monitors and data collecting personnel proved very successful. The B-25 courier aircraft landed on the dry lake for data pickup and departed from there to Kirtland Air Force Base.
- b. It was decided during this operation that if the Bullpup bombardier requested, a track of 280° could be used for the bomb run.
 - c. For details of this mission see inclosure #2.
 - 3. Second Nuclear Drop (28 January 1951)
- ever, it was conducted as scheduled. There existed slight overcast at the target area until the strike aircraft arrived over Las Vegas, at which time sky conditions cleared. However, there were very strong winds from the northwest at altitude. The drop was made holding 17° drift.
- b. Timing and results were good, and it appeared that most of the details in the operation's plan were running smoothly.
 - c. For details see inclosure #3.



ACCOUNTY MARK



4. Third Nuclear Drop (1 February 1951)

- a. After two days without a mission the third nuclear drop was scheduled and conducted.
- b. The only change in the operation's plan was the changing of the communications procedure. The strike aircraft was directed to return to Kirtland Air Force Base utilizing 7385kc. Lk3.lmc crystals were procured for AFOAT aircraft.
 - c. See inclosure #4 for details.

5. Fourth Nuclear Drop (2 February 1951)

- a. This mission was conducted according to plan; however, Reindeer aircraft failed to take off due to gas leaks.
 - b. See inclosure #5 for details.

6. Fifth Nuclear Drop (6 February 1951)

- a. 3 February 1951 participating agencies coordinated and confirmed the bombing altitude of 29,500 feet SCR 713 reading, bombing true airspeed of 315 MPH, and a burst altitude of the unit of 1350' above the target.
- b. On 5 February 1951, the mission was scheduled. 145 miles from Kirtland Air Force Base, Bullpup feathered an engine due to a broken oil line and returned to home base. Because of heavy load conditions the aircraft flew in the local area until proper landing weight was attained.

- c. A tentative decision was made at Nellis Air Force Base to make a daylight drop. After further consideration, the mission was postponed until the following day, 6 February 1951.
- d. On 6 February 1951, the mission was conducted according to plan. Because of the intensity of the burst, data gathering and dispatching the carry-all aircraft to Frenchman's Flat was delayed about one hour.
- e. The drop was made with #4 archie ringing in externally.

 Authority to drop was given by Mophead (the site control point).
 - f. See inclosure #6 for details.



VI CONCLUSIONS

- 1. Personal contact was made with representatives of each participating agency. Comments received indicated that results from this project were excellent. Sandia Corporation failed to obtain complete askania data from the second nuclear drop due to special equipment failure on the ground. Data for transit time was not received from this drop.
- 2. The primary data for obtaining yield and checking attuic cloud characteristics was excellent. Uranium, alpha, and neutron data were reported by the target site controller to be excellent.
- 3. From the standpoint of the 4925th Special Weapons Group, the operation was very successful. Advance planning with participating agencies enabled this organization to employ procedures that were clossly followed without major changes. Difficulties encountered were prinarily the result of cold weather requiring additional workloads on the maintenance section.
- h. Cooperation received by the 4925th Special Weapons Group from supporting and controlling organizations was outstanding.



VII RECOMMEDIDATIONS

- 1. Provide more detailed methods for radiological safety checks on personnel and for decontaminating aircraft at Kirtland Air Force Base, giving the exact place and time that checks will be performed.
- 2. Provide better communications between Indian Springs, where support aircraft were staged, and the target site control point, if this site is to be used for further operations of this kind.

Colonel, VSAF

Cormanding

8 Incls:

1-HE Practice Drop

2-1st Nuclear Drop

3-2nd Muclear Drop

4-3rd Nuclear Drop

5-4th Nuclear Drop

6-5th Nuclear Drop

7-IFI report

8-Cost Anal

DISTRIBUTION:

1-0G, SHO, MAFB, MM

1-Dr. John Clark, LASL

J-6 Div, Los Alamos, NMex

2-Gp File

A. Carrier Kan G



AIRCRAFT DATA

HE PRACTICE DROP

25 January 1951

(TIMES ARE PST)

1. Bullpup Operation

2	Take-off	
a.	I ake - OII	

(1) Eullpup Oll5 ETA Mophead 0336

(2) Nickname 0116

(3) Reindeer 0118

2. Position Reports

a. 0130 49 miles from Able

b. 01145 103 miles from Able

c. 0200 157 miles from Able

d. 0215 5 miles from Baker

e. 0230 62 miles from Baker

f. 0245 35 miles from Charlie

g. 0300 90 miles from Charlie

h. 0310 In contact with Mophead

3. Information of the Day to Bullpup 0305

a. Ground temperature 380 F

b. Temperature at altitude 24° C

c. Altimeter setting 30.31

d. Wind:

(1) Surface

60° at 5 K

(2) 10,000

40° at 6 K

Acft Data - HE Practice Drop - 25 Jan 51

•	(3) 22,000	3000	at 15 K
,	(4) Relative humidity at altitude	15%	
•	(5) Track	2700	•
٠,	(6) Time	0 550	
ļ.	Bullpup in area at 10,000' starting IFI		0336
5.	IFI complete	•	01:10
6.	Total time for practice IFI - 3h minutes		,
7.	Bomb runs completed:		
	a. First dummy run		0453
	b. Second dummy run		0512
•	c. Third dummy run		0526
	d. Live run:		* .
	(1) Doors open		0532
	(2) Base leg		0538
	(3) Drop time		0550.05
	(4) Actual time of fall - 35.25 Sec.		
	(5) C.E. 228' @ 0300		

8. Little Joe #3 Operation:

- a. Departed C.P. 0715; arrived lake 0720; returned to C.P. 0755.
- b. Departed C.P. for Indian Springs 0950; arrived 1010.

9. Carry-all Operation:

- a. C-47 arrived lake 0715; departed for Indian Springs 0759.
- b. B-25 carry-all #1 departed Indian Springs for Kirtland AFB 0819.
- c. E-25 carry-all #2 departed Indian Springs for Kirtland AFB 0930.





Acft Data - HE Practice Drop - 25 Jan 51

10. Landing times at Albuquerque and total mission time:

a.	Bullpup	0820	7 + 05
b	Nickname	0915	7 + 59
C.	Reindeer	0800	6 + 42
d.	Carry-all No. 1	1034	2 + 15
e.	Carry-all No. 2	1150	2 + 20



AIRCRAFT DATA

FIRST NUCLEAR DROP 1



27 January 1951

(TIMES ARE PST)

1. Bullpup Operation

- a. Take-off
 - (1) Bullpup Oll5 ETA Mophead 0330
 - (2) Nickname Oll7
 - (3) Reindeer 0105

2. Position Reports

- a. 0130 31 miles from Able
- b. 0145 97 miles from Able
- c. 0200 152 miles from Able
- d. 0215 201 miles from Able
- e. 0230 41 miles from Baker
- f. 0245 Over Charlie
- g. 0300 52 miles from Charlie
- h. 0315 89 miles from Charlie
- i. 0330 Over Dog

3. Information of the day to Bullpup 0347

- a. Ground temperature 350 F
- o. Temperature at altitude 24.50 C
- c. Altimeter setting 29.83



Acft Data, 1st Nuclear Drop -

27 Jan 51

- (1) Surface 150° at 5 K
- (2) 10,000 280° at 12 K
- (3) 22,000 290° at 30 K
- (4) Relative humidity at altitude 30%
- (5) Track 270°
- (6) Time 0546
- 4. Bullpup in area at 10,000' starting IFI 0350
- 5. IFI completed 0434
- 6. Total time IFI 44 minutes
- 7. Bomb runs completed
 - a. First dummy run 0507
 - b. Second dummy run 0520
 - c. Live run
 - (1) Doors opened 0527
 - (2) Base leg (turn before final) 0534
 - (3) Drop time 0544.5 (Scheduled 0546)
 - (4) Time of fall 35.44 Sec.
 - (5) C.E. 100' at 0600

8. Little Joe #3 Operation

- a. Take-off from C.P. -0559; arrived Frenchman's Flat 0605; returned to C.P. 0618.
- b. Take-off C.P. 0625 for Frenchman's Flat; returned to C.P. 0719.
- c. Take-off from C.P. for Frenchman's Flat 0800; returned to C.P. - 0812.



Acft Data, 1st Nuclear Drop -

27 Jan 51

- d. Take-off from C.P. 1027; arrived Indian Springs 1045.
- 9. Little Joe #2 Operation
 - a. Take-off from C.P. 1010; arrived Indian Springs 1031.
- 10. Carry-all (B-25) Operation
 - a. Carry-all #1
 - (1) Dispatched from Indian Springs to Frenchman's Flat 0623; arrived at 0640.
 - (2) Take-off from Frenchman's Flat for Kirtland AFB 0659; arrived at 0905. Lapse time 2 + 06.
 - b. Carry-all #2
 - (1) Dispatched from Indian Springs for Frenchman's Flat 0652; arrived at 0708.
 - (2) Take-off from Frenchman's Flat for Kirtland AFB 0742; arrived 0951. Lapse time 2 + 09
 - c. Hotshot
 - (1) Departed Indian Springs for Nellis AFB 1040; arrived 1102.
 - (2) Departed Nellis AFB for Kirtland AFB 1140; arrived 1331.

 Lapse time 1 + 59

11. Arrivals at Kirtland AFB

a.	Bullpup	0750	Lapse time	6 + 45
b.	Nickname	0823	Lapse time	7 + 08
c.	Reindeer	0745	Lapse time	6 + 40

8 al c





AIRCRAFT DATA

SECOND NUCLEAR DROP -

28 January 1951

(TIMES ARE PST)

1. Bullpup Operation

- a. Take-off
 - (1) Bullpup

0105

ETA Mophead 0338

(2) Nickname

0107

(3) Reindeer

0100

2. Position Reports

a. 0115

32 miles from Able (Albuquerque)

b. 0130

74 miles from Able

c. 0145

119 miles from Able

d. 0200

165 miles from Able

e. 0215

6 miles from Baker (Winslow)

f. 0230

9 miles from Charlie (Prescott)

g. 0245

56 miles from Charlie

h. 0300

97 miles from Charlie

i. 0315

Over Dog (Las Vegas)

3. Information of the Day to Bullpup

a. Ground temperature

400 F

b. Temperature at 22,000'

· 26.5 C

c. Altimeter setting

29.67

- d. Winds
 - (1) Surface

2200 at 5 K

SPICIFIC I



Acft Data - 2nd Nuclear Drop -

- 28 Jan 51

(2)	10,0001	
\~/		

250° at 22 K

(3) 22,0001

270° at 15 K

e. Relative humidity at altitude

62%

f. Track

270°

g. Time

0550

4. Bullpup in area at 10,000' starting IFI

0342

5. IFI completed

0418

6. Total time for IFI - 36 minutes

7. Bomb runs completed:

a. First dummy run

0447

b. Second dummy run

0508

c. Third dummy run

0525

d. Live run

(1) Bomb doors opened

0530

(2) Base leg (turn before final)

0538

(3) Drop time

0552.04 (Scheduled - 0550)

- (4) Time of fall 35.34 Sec.
- (5) C.E. 1851 at 0500

8. Little Joe #3 (Helicopter) Operation

- Take-off from C.P. to Frenchman's Flat 0618; arrived 0625; returned to C.P. - 0731.
- b. Take-off from C.P. to target area for reconnaissance 0740; returned to C.P. 0820.
- c. Take-off from C.P. for Indian Springs 0946; arrived 1009.



Acft Data - 2nd Nuclear Drop -

- 28 Jan 51

- 9. Little Joe #2 Operation
 - a. Take-off from C.P. for Indian Springs 0940; arrived 0959.
- 10. Carry-all (B-25) Operation
 - a. Carry-all No. 1
 - (1) Dispatched from Indian Springs to Frenchman's Flat 0645; arrived 0706.
 - (2) Take-off from Frenchman's Flat for Kirtland AFB 0709; arrived - 0919; lapse time 2 + 10
 - b. Carry-all No. 2
 - (1) Dispatched from Indian Springs for Frenchman's Flat 0705; arrived - 0721
 - (2) Take-off from Frenchman's Flat for Kirtland AFB 0303; arrived at 1008; lapse time 2 + 05
 - c. Hotshot
 - (1) Departed Indian Springs for Nellis AFB 1021; arrived 1040.
 - (2) Departed Nellis AFB for Kirtland AFB 1134; arrived 1331; lapse time 1 + 57
- 11. Arrival times at Kirtland AFB and mission time

Bullpup	0751	. 6 + 46
Nickname	0820	7 + 13
Reindeer	0753	6 + 53





AIRCRAFT DATA

THIRD NUCLEAR DROP -

1 February 1951

(TIMES ARE PST)

0116.

1. Bullpup Operation

a. Take-off

(1) Bullpup

(2) Nickname 0120

(3) Reindeer 0122

2. Position Reports

a. 0130 31 miles from Able (Albuquerque)

b. 0145 79 miles from Able

c. 0200 135 miles from Able

d. 0215 172 miles from Able

e. 0230 26 miles from Baker (Winslow)

f. 0245 Over Charlie (Prescott)

g. 0300 Ul miles from Charlie

h. 0315 87 miles from Charlie

i. 0330 llO miles from Charlie

j. 0345 25 miles from Dog (Las Vegas)

3. Information of the Day to Bullpup - 0400

a. Ground temperature 22° F

• Temperature at altitude 31.5° C

c. Altimeter setting 30.36



- d. Winds
 - (1) Surface

Calm

(2) 10,0001

300° at 24 K

(3) 22,0001

320° at 80 K

e. Track

2700

f. Drop time

0548

4. Bullpup in area at 10,000' starting IFI

0357

5. IFI completed

0429

- 6. Total time for IFI 32 minutes
- 7. Bomb runs completed
 - a. First dry run

0447

b. Second dry run

0504

c. Live run

0546.2 drop time

- d. Actual time of fall 35.29 seconds
- e. C.E. 157' at 0900
- f. Bomb alt 19,700 true
- g. Track 2700
- 8. Little Joe #3 Operation
 - a. Take-off C.P. 0603; arrived Frenchman's Flat 0609; returned . C.P. 0625
 - b. Take-off C.P. 0635; arrived Frenchman's Flat 0640; returned C.P. 0754
 - c. Departed C.P. for Indian Springs 0907; arrived Indian Springs 0928.





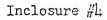
Acft Data - 3rd Nuclear Drop -

- 1 Feb 51

- 9. Little Joe #2 Operation
 - a. Take-off C.P. 0630; arrived Frenchman's Flat 0738; returned to C.P. 0848.
 - b. Take-off C.P. 0849; arrived Indian Springs 0910
- 10. Carry-all (B-25) Operation
 - a. Carry-all No. 1
 - (1) Dispatched from Indian Springs 0623; arrived Frenchman's Flat 0639; departed for Kirtland AFB 0655; arrived KAFB 0910; lapse time 2 + 15
 - b. Carry-all No. 2
 - (1) Dispatched for Indian Springs 0635; arrived Frenchman's Flat 0651; departed for Kirtland AFB 0733; arrived KAFB 0941; lapse time 2 + 08
 - c. Hotshot
 - (1) Departed Indian Springs for Nellis AFB 1008; arrived 1142; Departed Nellis AFB for Kirtland AFB 1215; arrived KAFB 1410; lapse time 1 + 55
- 11. Arrival times at Kirtland AFB and mission time

Bullpup	0751	Lapse time	6 + 35
Nickname	0820	Lapse time	7 + 00
Reindeer	0753	Lapse time	6 + .31







AIRCRAFT DATA

FOURTH NUCLEAR DROP -



2 February 1951

(TIMES ARE PST)

1. Bullpup Operation

- a. Take-off
 - (1) Bullpup

0122 ETA Mophead OLO1

(2) Nickname

0123

(3) Reindeer (Cancelled at 0122, mechanical difficulties)

2. Position reports

- a. 0130
- 18 miles from Able (Albuquerque)
- b. 0145
- 74 miles from Able
- c. 0200
- 112 miles from Able
- d. 0215
- 172 miles from Able
- e. 0230
- 65 miles from Baker (Winslow)
- f. 0245
- Over Charlie: (Prescott)
- g. 0300
- 28 miles from Charlie
- h. 0315
- 75 miles from Charlie
- i. 0330
- 122 miles from Charlie
- j. 0340
- Over target area

3. Information of the Day to Bullpup - 0348

- a. Ground temperature
- 21º F
- b. Temperature at altitude
- 22.30 C
- c. Altimeter setting
- 30.46



Acft Data - 4th Nuclear Drop -

- 2 Feb 51

nds

(1)	Surface	Calm
1 1	DULLACO	000

- (2) 10,000' 280° at 25 K
- (3) 22,000' 300° at 45 K
- e. Relative humidity Ground 73%; altitude 18%
- f. Track 280°
- g. Drop time 0547
- 4. Bullpup in area at 10,000' starting IFI 0340
- 5. IFI completed 0408
- 6. Total time for IFI 28 minutes
- 7. Bomb runs completed
 - a. First dummy run 0437
 - b. Second dummy run 0456
 - c. Third dummy run 0519
 - d. Live run
 - (1) Bomb doors open 0524
 - (2) Base leg 0532
 - (3) Drop time 0548.973
 - e. Actual time of fall 35.34 seconds
 - f. C.E. 380! at 1000
- 8. Little Joe #3 Operation
 - a. Take-off C.P. 0610; arrived Frenchman's Flat 0617; returned to C.P. 0652
 - b. Take-off C.P. for P-1 camera station 0801; returned to C.P. 0827
 - c. Take-off C.P. 0928; arrived Indian Springs 0740



Acft Data - 4th Nuclear Drop -

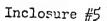
2 Feb 51

- 9. Little Joe #2 Operation
 - a. Take-off C.P. for generator shack 0716; returned C.P. 0739
 - b. Take-off C.P. for generator shack 0840; returned C.P. 0901
- 10. Carry-all (B-25) Operation
 - a. Carry-all No. 1
 - (1) Take-off from Indian Springs 0619; arrived Frenchman's Flat 0636
 - (2) Departed Frenchman's Flat for Kirtland AFB 0646; arrived 0856; lapse time 2 + 10
 - b. Carry-all No. 2
 - (1) Take-off from Indian Springs 0630; arrived Frenchman's Flat 0645
 - (2) Departed Frenchman's Flat for Kirtland AFB 0721; arrived 0924; lapse time 2 + 03
 - c. Hotshot
 - (1) Departed Indian Springs for Nellis AF3 0955; arrived 1015
 - (2) Departed Nellis AFB for Kirtland AFB 1100; arrived 1258; lapse time - 1 + 58
- 11. Arrival times at Kirtland AFB and mission time

Bullpup	0745	Lapse time	6 + 23
Nickname	0831	Lapse time	7 + 08

Reindeer Cancelled







AIRCRAFT DATA

FIFTH NUCLEAR DROP -



(Aborted)

5 February 1951

(TIMES ARE PST)

- 1. Bullpup Operation
 - a. Take-off
 - (1) Bullpup 0045 ETA Nophead 0313
 - (2) Nickname 0017
 - (3) Reindeer 0037
- 2. Position Reports
 - a. 0100 34 miles from Able (Albuquerque)
 - b. 0115 95 miles from Able
 - c. 0130 lu5 miles from Able
 - d. 0135

 162 miles from Able -- Bullpup feathered #3 engine due to oil leak and returned to Kirtland AFB
 - (1) 0215 Bullpup began circling 15 miles south of Kirtland to consume fuel to make landing weight. Estimated landing time -- 0500
- 3. After consultation between Dr. Clark, Dr. Graves, and Mr. Tyler as to whether a daytime drop (1100 PST) would be made, mission was definitely cancelled at 0305



AIRCRAFT DATA

FIFTH NUCLEAR DROP -



6 February 1951

(TIMES ARE PST)

1. Bullpup Operation

a. Take-off

(1) Bullpup 0045 ETA Mophead 0315

(2) Nickname 0046

(3) Reindeer 0039

2. Position Reports

a. 0100 39 miles from Able (Albuquerque)

b. 0115 . 90 miles from Able

c. 0130 lh0 miles from Able

d. 0145 189 miles from Able

e. 0200 40 miles from Baker (Winslow)

f. 0215 3 miles from Charlie (Prescott)

g. 0230 43 miles from Charlie

h. 0245 90 miles from Charlie

i. 0300 l32 miles from Charlie

j. 0319 Over target area

3. Information of the Day to Bullpup - 0315

a. Scattered cirus at 27,0001

b. Ground temperature 37° F

c. Temperature at altitude 45° C

d. Altimeter setting 30.06

Acft Data - 5th Nuclear Drop -

- 6 Feb 51

•	Winds

(1)	Surface		Calm			
(2)	10,0001		320°	at	21:	K
(3)	20,0001		320°	at	50	K
(4)	25,000		320°	at	54	X
(5)	32,0001		320°	at	65	7

f. Relative humidity

Ground 72%; altitude - 15%

g. Track

280°

h. Drop time

0545

4. Bullpup in area at 10,000' starting IFI - 0319

5. IFI completed

0378

6. Total time for IFI - 30 minutes

7. Bullpup leveled off at 17,000' -- suspected radar interference

8. Bomb runs completed

to use track of 270°)

b. Second dummy run 0453

c. Third dummy run 0513

d. Live run

(1) Doors open 0517

(2) Base leg (turn before final) 0529

(3) Drop time 0546.17 (0545 scheduled)

e. Actual time of fall - 45.23 seconds

f. C.E. 380' at 0900





Acft Data - 5th Nuclear Drop -

6 Feb 51

9. Little Joe #3 Operation

- a. Take-off C.P. 0625; arrived Frenchman's Flat 0629; returned to C.P. 0725.
- b. Departed C.P. for Area 0925 to reconnoiter; returned C.P. 0938;
- c. Departed C.P. for Indian Springs 1031; arrived 1049 with Hotshot material.

10. Little Joe #2 Operation

a. Departed C.P. for Indian Springs - 0829; arrived 0845 with carry-all No. 2 material.

11. Carry-all (B-25) Operation

a. Carry-all No. 1

- (1) Dispatched from Indian Springs to lake 0632; arrived 0647
- (2) Take-off from lake for Kirtland AFB 0729; arrived 0940; lapse time 2 + 11

b. Carry-all No. 2

- (1) Staged from Indian Springs
- (2) Material delivered to acft by Little Joe No. 2 at 0850
- (3) Carry-all No. 2 departed Indian Springs for Kirtland AFB 0855; arrived 1044; lapse time 1 + 49

c. Hotshot

- (1) Departed Indian Springs for Nellis AFB 1058; arrived 1117;
- (2) Departed Nellis AFB for Kirtland AFB 1201; arrived 1359; lapse time - 1 + 58

12. Arrival times at Kirtland AFB and mission time

Bullpup	0750	Lapse time	7 + 05
Nickname	0826 0726	Lapse time	7 + 40
Reindeer	0745	Lapse time	7 + 06

